IN THE CLAIMS:

Please cancel claims 1-20:

1-20. (Canceled)

Please add the following new claims 21-40:

21. (NEW) An optical pickup device for detecting a focus error of a light beam, having an irradiation optical system for focusing the light beam to form a spot on a track extending in an information recording surface of an optical recording medium, and a light detection optical system for leading return light reflected back from the spot to a photodetector, said optical pickup device comprising:

a focus error detecting optical element having four sections of first through fourth quadrants quadrisected around the center of an optical path of the return light along two division lines extending corresponding to a track extending direction and a direction perpendicular to the track extending direction respectively, the four sections disposed on a plane substantially perpendicular to the optical path of the return light,

wherein the four sections provide astigmatism for the return light passing through the sections contiguous to said division lines so that the astigmatism in directions are rotated by 90° from each other about the optical path, while separating the return light into at least four paths; and

a photodetector which has at least four spaced light receiving elements for receiving the separated return light each of which has contour lines corresponding to said division lines and is comprised of two light receiving areas divided by a bisect line extending substantially in parallel with one of the contour lines,

wherein said bisect line of said spaced light receiving element extends corresponding to the direction perpendicular to the track extending direction.

22.(NEW) The optical pickup device according to claim 21, wherein the focus error detecting optical element is a blazed quadrant hologram element.

23.(NEW) The optical pickup device according to claim 21, wherein each of the four spaced light receiving elements is divided by the bisect line so that signals output from two light receiving areas of each spaced light receiving element are substantially equal in a condition that focused spots of the return light are received on said spaced light receiving elements as a minimum scattered circular image.

24.(NEW) The optical pickup device according to claim 21, further comprising a calculating circuit connected to said spaced light receiving elements for generating a focus error signal from the sum of differences of signals output from two light receiving areas of said spaced light receiving elements.

25.(NEW) The optical pickup device according to claim 21, further comprising auxiliary light receiving elements for receiving the return light out of two line image ranges caused by the astigmatism, said auxiliary light receiving elements positioned along the contour line corresponding to the bisect line of said spaced light receiving element.

26.(NEW) The optical pickup device according to claim 25, further comprising a calculating circuit connected to said auxiliary light receiving elements for calculating the sum of signals output from said auxiliary light receiving elements generated by the return light returned from a pair of the sections existing at diagonal positions in said first through fourth quadrants.

27.(NEW) The optical pickup device according to claim 25, further comprising a capture range calculating circuit connected to said spaced light receiving element and said auxiliary light receiving elements for adding the sum of signals output from said auxiliary light receiving elements generated by the return light from two sections existing at diagonal positions in said first through fourth quadrants to the sum of differences of outputs from two light receiving areas of said spaced light receiving elements.

28.(NEW) The optical pickup device according to claim 25, wherein said auxiliary light receiving elements are integrated into said light receiving areas on the opposite side of said contour line corresponding to said division line of said spaced light receiving elements.

29.(NEW) The optical pickup device according to claim 21, wherein said focus error detecting optical element includes:

cylindrical lenses of one pair of the sections existing at diagonal positions in said first through fourth quadrants, and having central axes extending in a direction in which said division line extends; and

cylindrical lenses of the other pair of the sections existing at diagonal positions in said first through fourth quadrants, and having central axes extending in a direction at 90° to the direction in which said division line extends,

wherein the central axes of cylindrical lenses of at least one pair of the sections existing at diagonal positions in said first through fourth quadrants are offset from said division line in parallel therewith.

30.(NEW) The optical pickup device according to claim 29, wherein the offset central axes of the cylindrical lenses existing at diagonal positions in said first through fourth quadrants are offset from said division line on opposite sides to each other.

31.(NEW) The optical pickup device according to claim 30, wherein said focus error detecting optical element further comprises deflecting prism surfaces tilted at different angles to planes vertical to optical paths of the return light and positioned on the opposite sides to the cylindrical lenses other than said offset cylindrical lenses having the offset central axes.

32.(NEW) The optical pickup device according to claim 21, wherein:

cylindrical lenses of one pair of the sections existing at diagonal positions in said first through fourth quadrants, and having central axes extending in a direction in which said division line extends; and

cylindrical lenses of the other pair of the sections existing at diagonal positions in said first through fourth quadrants, and having central axes extending in a direction at 90° to the direction in which said division line extends,

wherein said focus error detecting optical element further comprising deflecting prism surfaces tilted at different angles to planes vertical to optical paths of the return light and positioned on the opposite sides to at least one pair of the cylindrical lenses of the sections existing at diagonal positions in said first through fourth quadrants.

33.(NEW) The optical pickup device according to claim 32, wherein said deflecting prism surfaces are formed to be tilted at different angles to the places perpendicular to the plane vertical to the optical paths of the return light.

34.(NEW) The optical pickup device according to claim 33, wherein said deflecting prism surfaces are placed only on the opposite sides to the cylindrical lenses of at least one pair of the sections existing at diagonal positions, and wherein the central axes of cylindrical lenses of the remaining pair of the sections existing at diagonal positions in said first through fourth quadrants are offset from said division line in parallel therewith.

35.(NEW) The optical pickup device according to claim 29, wherein said spaced light receiving elements are arranged in parallel with one of said division lines of said focus error detecting optical element.

36.(NEW) The optical pickup device according to claim 35, further comprising:

a diffraction grating disposed in said irradiation optical system; and

a pair of sub-photodetectors disposed on one side of a column of said spaced light receiving elements for receiving a + primary diffraction sub-beam and a - primary diffraction sub-beam, respectively,

wherein said optical pickup device conducts a tracking control based on a three-beam method.

37.(NEW) The optical pickup device according to claim 29, further comprising a comparator/detector for detecting a difference in phase of respective sum signals output from two sets of said spaced light receiving elements existing at diagonal positions for independently receiving the return light passing through said four sections of first through fourth quadrants of said focus error detecting optical element, wherein said optical pickup device conducts a tracking control based on a phase difference method.

38.(NEW) The optical pickup device according to claim 21, further comprising auxiliary light receiving elements each disposed adjacent to each of said light receiving areas along said contour line corresponding to said division lines of said spaced light receiving elements.

39.(NEW) The optical pickup device according to claim 38, further comprising a focus error signal correction calculating circuit connected to said spaced light receiving elements and said auxiliary light receiving elements for adding the sum of differences of signals output from said auxiliary light receiving elements to the sum of differences of signals output from two light receiving areas of said spaced light receiving elements to generate a focus error signal.

40. (NEW) A focus error detecting method for detecting a focus error in a light beam in an optical pickup device having an irradiation optical system for focusing the light beam to form a spot on a track on an information recording surface of an optical recording medium, and a light detection optical system for leading return light reflected back from the spot to a photodetector, said method comprising the steps of:

using a focus error detecting optical element having four sections of first through fourth quadrants quadrisected around the center of an optical path of the return light along two division lines extending corresponding to a track extending direction and a direction perpendicular to the track extending direction respectively, the four sections disposed on a plane substantially perpendicular to the optical path of the return light, wherein the four sections provide astigmatism for the return light passing through the sections contiguous to said division lines so that the astigmatism in directions are rotated by 90° from each other about the optical path, while separating the return light into at least four paths; and

using a photodetector which has at least four spaced light receiving elements for receiving the separated return light each of which has contour lines corresponding to said division lines and is comprised of two light receiving areas divided by a bisect line extending substantially in parallel with one of the contour lines, wherein said bisect line of said spaced light receiving element extends corresponding to the direction perpendicular to the track extending direction.